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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/539,961  
Filing Date: June 17, 2005  
Appellant(s): PIGNAGNOLI ET AL.

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Ray Ashburg  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 4/8/08 appealing from the Office action mailed 10/9/07.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: The claims (claims 1, 8-15, 19, 20, and 22-25) are rejected in a single grounds of rejection under 35 USC 103 as being obvious over Hickey et al.(6,359,022) in view of Chow et al.(3,842,036), rather than the separate grounds of rejection alluded to in appellants' listing of grounds of rejection for review on appeal.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,359,022	HICKEY ET AL.	3-2002
3,842,036	CHOW ET AL.	10-1974

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 8-15, 19, 20, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hickey et al.(6,359,022) in view of Chow et al.(3,842,036).

Hickey et al. discloses preparations of rigid closed cell foams prepared from two component foam forming compositions wherein (a.) the polyols component includes aromatic polyester polyol, polyether polyol as desired, alkanes and water as blowing agents, as well as, other blowing agents, including, as a preferable species, formic acid, and hydrofluorocarbons, as desired, and other ingredients; (b.) the isocyanate

component comprises, at least, specifically, Mondur 489 which is an aromatic isocyanate having a functionality of 3.0, and (c.) the two components are combined at various NCO indexes meeting those of appellants' claims (see the abstract, column 1 lines 12-30, column 2 lines 41-51, column 3 lines 22-24, column 4 lines 66-67, column 11 lines 65-67, column 12 lines 55 et seq., column 13-15, column 16 lines 1-37, column 21 lines 2-22, Example 10, Table 5, and claims 15 and 16, as well as, the entire document).

Hickey et al. differs from appellants' claims in that formic acid is not particularly required. However, formic acid is exemplified as a most preferred monocarboxylic auxiliary blowing agent (column 14 lines 44-45). Accordingly, it would have been obvious for one having ordinary skill in the art to have employed the formic acid of Hickey et al. in the preparations of Hickey et al. for the purpose of imparting their foam enhancing and producing effects in order to arrive at the products and processes of appellants' claims with the expectation of success in the absence of a showing of new or unexpected results.

Additionally, Hickey et al. discloses that control of the amount of their blowing agents (see column 15 line 62- column 16 line 37) and control of amounts of the blowing agent for purposes of controlling the implementation of their result effective effects, such as density, is within the purview of the ordinary practitioner in the art. Normally, changes in result effective variables are not patentable where the difference involved is one of degree, not of kind; experimentation to find *workable* conditions generally involves nor more than the application of routine skill in the art of chemical

engineering. *In re Aller* 105 USPQ 233. Similarly, the determination of *optimal* values within a disclosed range is generally considered obvious. *In re Boesch* 205 USPQ 215. Further, a *prima facie* case of obviousness has been held to exist where the proportions of a reference are close enough to those of the claims to lead to an expectation of similar properties. *Titanium Metals v Banner* 227 USPQ 773. (**see also MPEP 2144.05 I).**

Hickey et al. differs from appellants' claims in that phenol formaldehyde novolak initiated polyalkylene oxide polyols are not exemplified as species in the description of the preferentially employed polyoxyalkylene polyether additional polyols of Hickey et al.'s invention (column 11 lines 65-67). However, Chow et al. discloses phenol formaldehyde novolak initiated polyalkylene oxide polyols to be useful polyether polyols in the formation of rigid polyurethane and polyisocyanurate foams for purposes of assisting in rigidity contribution and enhancing strength and stability properties in products formed (see column 1 line 46- column 3 line 22, as well as, the entire document). Accordingly, it would have been obvious for one having ordinary skill in the art to have employed the phenol formaldehyde novolak initiated polyalkylene oxide polyols of Chow et al. as the additionally employed polyoxyalkylene polyols in the preparations of Hickey et al. for the purpose of imparting their rigidity, strength, and stability contributing effect to the products realized in order to arrive at the products and processes of appellants' claims with the expectation of success in the absence of a showing of new or unexpected results. Chow et al. is looked to for the disclosure of the polyol of appellants' claims, and its disclosure is inclusive of employment of these

polyols in the amounts as claimed by appellants. Further, the following applies here as well. Normally, changes in result effective variables are not patentable where the difference involved is one of degree, not of kind; experimentation to find *workable* conditions generally involves nor more than the application of routine skill in the art of chemical engineering. *In re Aller* 105 USPQ 233. Similarly, the determination of *optimal* values within a disclosed range is generally considered obvious. *In re Boesch* 205 USPQ 215. Further, a *prima facie* case of obviousness has been held to exist where the proportions of a reference are close enough to those of the claims to lead to an expectation of the same properties. *Titanium Metals v Banner* 227 USPQ 773. (**see also MPEP 2144.05 I)**

Appellants' provide no structure to their laminate other than requiring that the foam material be present. Accordingly, no patentable weight is afforded the limitations of claim 15.

#### **(10) Response to Argument**

Initially, it is noted that while the argument section is separated based on independent claims, it is clear that all arguments are directed to the rejection over Hickey et al. in view of Chow et al.

Appellants' arguments have been considered, but rejection is maintained for the reasons set forth above. Rejection is maintained as proper as set forth above, and differences based on claim components and their respective amounts are maintained to be properly addressed in the rejection.

Examiner holds and maintains that Hickey et al. provides for inclusion of inclusion of polyoxyalkylene polyether polyols in amounts overlapping the ranges of values of appellants' claims (see again, column 11 lines 65-67 and column 12 line 63, as well as, the entire document), and Chow et al. is properly looked to in resolving the deficiencies of Hickey et al. pertaining to the selection of polyoxyalkylene polyether polyol.

Examiner holds and maintains that Hickey et al. provides for control of the selection and amount of blowing agent within in its own teaching (see again, column 15 line 62-column 16 line 37, column 13 lines 41-43, and column 14 lines 44-45, as well as, the entire document) such that rejection does not fail based on the manner that appellants define the blowing agent component of their claims.

Though formic acid is referred to as an "auxiliary" blowing agent used in conjunction with the other blowing agents disclosed by Hickey et al., such does not negate Hickey et al.'s disclosure of this species as a preferred carboxylic acid used in imparting chemically reactive foam forming effects. Additionally, it is noted that the full teachings of Hickey et al. must be taken for what it teaches or fairly suggest. Hickey et al. discloses water and carboxylic acids together as chemical blowing agent in its disclosure, discloses formic acid to be a preferred carboxylic acid, sets forth guidance for usage amounts(column 16 lines 18-26), and exemplifies chemical blowing agents in its examples at amounts of 1.5 parts by weight. Examiner maintains Hickey et al. to fairly suggest controls of the amounts of chemical blowing agents in order to arrive at the values of the ranges of amount values of appellants' claims such that the ranges of

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values of appellants' claims are properly maintained to be within the purview of the ordinary practitioner in the art.

As to the alkane blowing agents of appellants' claims, the selection of the alkanes is not a difference in Hickey et al. as selection of alkanes of appellants' claims are exemplified by Hickey et al., and the selection of amounts of alkane blowing agent is maintained to be a control within the purview of the ordinary practitioner in the art having Hickey et al.'s full teaching before him(see also, again, column 16 lines 29-37).

Chow et al. is not looked to for its teachings of elements provided for by the teachings of Hickey et al. Additionally, it is noted that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Appellants' arguments at page 13 of the Appeal Brief pertaining to alleged conclusive statements are noted. Initially, it is noted that these arguments appear to be referring to the arguments from page 3 second full paragraph of the Office action dated 10/9/07. However, the conclusions made by examiner are maintained to be proper and are held to be factually supported by the evidence of record, including column 15 line 62-column 16 line 37 of Hickey et al.

As to appellants' arguments pertaining to showings of results, it is held and maintained that the following must be considered when considering showings of results:

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Claims Must be Commensurate With Showings:

Evidence of superiority must pertain to the full extent of the subject matter being claimed. *In re Ackerman*, 170 USPQ 340; *In re Chupp*, 2 USPQ 2d 1437; *In re Murch* 175 USPQ 89; *Ex Parte A*, 17 USPQ 2d 1719; accordingly, it has been held that to overcome a reasonable case of *prima facie* obviousness a given claim must be commensurate in scope with any showing of unexpected results, and in order to establish unexpected results for a claimed invention, objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support. *In re Greenfield*, 571 F.2d 1185, 1189, 197 USPQ 227, 230 (CCPA 1978), *In re Linder*, 457 F.2d 506, 508 (1972), *In re Tiffin*, 448 F.2d 791, 792 (1971). Further, a limited showing of criticality is insufficient to support a broadly claimed range. *In re Lemkin*, 161 USPQ 288. See also *In re Kulling*, 14 USPQ 2d 1056.

Results Must be Unexpected:

Unexpected properties must be more significant than expected properties to rebut a *prima facie* case of obviousness. *In re Nolan* 193 USPQ 641 CCPA 1977.

Obviousness does not require absolute predictability. *In re Miegel* 159 USPQ 716.

Since unexpected results are by definition unpredictable, evidence presented in comparative showings must be clear and convincing. *In re Lohr* 137 USPQ 548.

In determining patentability, the weight of the actual evidence of unobviousness presented must be balanced against the weight of obviousness of record. *In re Chupp*, 2 USPQ 2d 1437; *In re Murch* 175 USPQ 89; *In re Beattie*, 24 USPQ 2d 1040.

Appellants' have not persuasively demonstrated unexpected results for the combinations of their claims. Appellants have not sufficiently demonstrated their results to be unexpected, and appellants have not demonstrated their showings to be commensurate in scope with the scope of combinations now claimed. Appellants' have not met their burden of "demonstrating substantially improved results" to be associated with the products and processes of the instant claims which are commensurate in scope with the scope of the claims as they currently stand. Further, appellants' have not met their burden of factually establishing improved fire retardation and smoke properties to be associated with the products and processes of the instant claims that are commensurate in scope with the scope of the claims as they currently stand. Further, as to the claims directed towards methods of improving fire retardancy of polyisocyanates-based foams, it is held that a showing of new or unexpected results attributed to the processes claimed would need to be established that are commensurate in scope with the scope of the claims in order to overcome the rejection set forth above.

As to the particulars of the appellants' showing of results, it is held and maintained that the only comparative examples which serve to address appellants' burden of showing new or unexpected results were comparatives 3 & 4. This

comparison is persuasive for the specific blends of polyols of example 3, (A.) including the amounts, formic acid in the amount specified and/or from 1.5 -2.0, (B.) pentanes and/or the non-halogenated alkanes of the claims in the amount exemplified.

Examples 1 & 2 set forth an improper back to back comparison in that there are significant differences in the composition beyond the features being compared. 5 & 6 and 7 are not comparisons of the invention in that they do not contain the required physical blowing agent of the claims. Examples 8 and 9 set forth an improper back to back comparison in that there are significant differences in the composition beyond the features being compared, and it is not clearly established what difference the skin cure result is attributable to. It is not seen or established how examples 10-19 are relevant in addressing the rejection of record. It is maintained that no claim as they currently stand are allowable.

Appellants' further discussion of the results does not serve to demonstrate that the current showings of result are persuasive of a patentable invention for the scope of the claims as they currently stand.

Appellants' arguments on appeal suggest that examiner has indicated that showing of unexpected results have been made for formic acid in amounts of from 1.5-2.0 parts per hundred parts of polyols. However, this assumption made by appellants is not an accurate representation of what was indicated by examiner. Examiner indicated that the comparison provided by examples 3 and 4 of appellants' supporting disclosure was persuasive for the specific blends of polyols of example 3, (A.) including the

amounts, formic acid in the amount specified and/or from 1.5 -2.0, (B.) pentanes and/or the non-halogenated alkanes of the claims in the amount exemplified.

Examiner's indications pertaining to the range of from 1.5-2.0 parts per hundred polyol was merely indicating that the data point of appellants' example 3 (1.6 parts of formic acid) was a sufficient representation for the range of values of from 1.5-2.0 parts by weight for formic acid. This indication, however, does not negate the other deficiencies of appellants' showings provided for by examples 3 and 4 of their supporting disclosure which include inadequate representation of polyols and blends of polyols encompassed by the scope of appellants' claims and the ranges of amount values for alkane blowing agents encompassed by appellants' claims.

Examiner holds and maintains that appellants have not made the necessary showing new or unexpected results that is commensurate in scope with the scope of their claims in order to overcome the properly maintained rejection over combination Hickey et al. in view of Chow et al.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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